

CLEVELAND AREA 99-4A USERS GROUPS

NOVEMBER

NEWSLETTER

1985

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GROUPS' NEWSLETTER ED. - MARK WOODWARD ((561-2967)

CHIPS TIPS

CHANGING THE CURSOR IN BASIC IN THE IMMEDIATE MODE

Hello, Boys & Girls, & welcome to my neighborhood. Today's address is 1008. By putting different numbers into this address & his neighbors, we can change the shape of Mr. Cursor. First, lets call Mr. cursor out. With your Editor/Assembler or Mini Memory, enter basic & there he is. He dosen't look all that happy, does he? Now lets call Mr. Trolly to cheer him up. Type in this command:

CALL POKEY(1008,126,129,165,129,165,153,129,126)

See Boys & Girls, He's happy now!

Here are some other designs you might like to try:

Starburst: 153,66,36,129,129,36,66,153

Underline: 0,0,0,0,0,0,0,254

Note: changing the cursor may result in the crashing of a Program in memory.

JAMES ZBIEGIEN

If you have any hints, suggestions, or comments, you can give me a call at 238-3971. Better yet, if you have any questions or are confused about anything, call me & I could have the answer printed in the future. I'm not saying that I know all of the answers, but chances are that I could find someone who could answer your question.

Rich Polivka
RICH POLIVKA

EXECUTIVE NOTES -- TI CHIPS
OCTOBER 1985

Hope everyone had a terrific summer and is looking forward to fall with its spectacular colored leaves. Our September meeting was a very spectacular one.

Rich Poleyka gave a presentation on the use of Modems. I was surprised to hear of the many services available through Bulletin Boards and other services such as stocks, magazines and railroading. Rich has a list of Bulletin Boards if anyone needs information regarding this.

Tom Thalner of Edu-Comp advised us about new products from CorComp, the Clock/calendar and the Triple Tech Card. He also demonstrated the Explorer disc. You can actually see a program running. It has a search function, looks really great for editing programs and also has speed control among many other features.

Steve Latza brought a Cleaning Kit for us to see. This Kit included everything needed to clean all your computer equipment: anti-static fluids, discs and printer head cleaner, lint-free cloths, platen cleaner and different cleaning solutions, just to mention a few. It also included an instruction booklet.

We thank all who helped to make our meeting great. Our Library Committee is still looking for someone to help with the Library. Just think! All the programs available at your fingertips! The advantages are great. Contact Barbara Hagele at 234-3282 and she can let you know what is involved.

Hope to see you all at the next meeting on:

October 19, 1985
North Royalton Public Library
10:00 AM

Jan Fedor, Secretary

(Ed.note: We are sorry that this is being published late.)

EXECUTIVE NOTES - SOLON

NOVEMBER

Our topic for the month of September was relative file processing, as demonstrated through a sample program put together by Walt Ryder. Walt showed us how an assembly program linked to BASIC could sort and search for specific disk files. Thanks to Walt for the interesting and informative presentation. Our topic for November will cover some of the versitilities of II WRITER, as presented by Frank Jenkins. At this time, I'm still looking for a topic for December. (Any volunteers?)

At the last meeting, we discussed the possibility of reinstituting a fee for copying disk programs. With the purchase of our own disk drive, the policy of charging for this service was suspended. It was the consensus of the members present that copying should remain a free service, and if any repairs should have to be performed on the disk drive, the funds needed will be taken from the treasury. This fee was originally used to pay for wear and tear on personally owned equipment used for copying materials.

Frank Jenkins reported that the number of newsletters on our bulk mailing list is rapidly dwindling. In order to maintain the minimum amount required to keep our bulk status, we are going to have to look for other user's groups or organizations to add to the mailing list. Ron Duffy said that he will check through COMPUSERVE for any user's groups that may be interested in getting our newsletters. The cutoff for bulk mailing is 200 pieces and we are close to that number right now. However, if we lose more memberships, (which is an unfortunate trend at this time), we may be put in a bind as far as our bulk status goes.

You have probably noticed, as I have, that some of the mail order catalogs are advertising II software for really bargain prices. I get the feeling that this is a good time to invest in software if the finances allow for it. It may be that most of what is currently available is going to disappear in the near future. I just purchased LOGO II for my kids for \$19.95, and I'm pretty sure that it won't be found again at that price, or any other, in a short while.

See you November 9, Solon Public Library
Steve Weinkamer, President

EXECUTIVE NOTES--NORTHCOAST

Last months meeting was arranged by our Vice President Dan Davenport and featured a demonstration of ACORN 99 by its author Charles L. Davis of Oaktree Systems. This program was reviewed by MICROPENDIUM in their July issue and is the database for our machine. It is available from Edu-Comp or Oaktree Systems for \$49.95. The turn-out was great but not as many attended from other groups as desired, hopefully this will change with other subject matter. Great job, Dan and Chuck! Also used in this presentation was a new "Y" video cable which allows use of a TV by the demonstrator and two monitors for the audience.

Deals on new and used equipment abound. At the meeting I mentioned the limited availability of an inexpensive TI compatible 4 color printer/plotter--great for graphing mathematical equations. Another member bought two double sided half height drives for about the price of one from an ad in MICROPENDIUM.

The bulletin board is now running TECHIE as demonstrated by Larry Prikockis. The club bought the required smart modem and traded the old modem for a double sided drive. This additional drive when on line will allow us to run the latest version which allows up and downloading of programs.

The library has been transferred to floppies and will be available for copying only before the meetings (12:15-1:15). Deanna is busy cataloging the Amnion disks--we have received the second batch of these disks (another 40). Deanna is also acting as assistant newsletter editor and is gathering tips from others for use in our publication. She is sorting all the articles by subject and has started a club notebook. She has suggested that we consider reprinting these and making them available inexpensively to the membership. Sounds like a great idea!

The big news is the TI-Faire in Chicago on November 2nd. From the list of attendees that MICROPENDIUM published--all the biggies in the TI world will be there and the long awaited new computer will debut finally! Tom and Judy Thalner of Edu-Comp will attend and promise a report for our newsletter. We hope to have a brief slide show of this event at our next meeting November 16th.

We also are planning demonstrations of graphics programs: Paint-N-Print by Navarone, Graphics Package by Norton, and possibly Graphx from Australia.

Many members are upgrading their systems with recently introduced products. I ask these members to please arrange to informally show it at the end of the meeting for those contemplating purchase of the same.

Lastly, it is almost that time for election of officers for the coming year. If you or someone you know can serve, please contact me or complete the nomination form found elsewhere in this newsletter.

Ken Gladyszewski
President

Some Editorial Comments

*A TERRIBLE LOSS!

We were saddened to recently learn of the death of one of our most valued members, "Someone Else". "Someone Else's" passing created a vacancy that will be difficult to fill. "Someone" had been with us almost since our club was formed, and during that time, "Someone Else" did far more than a normal person's share of the work. Whenever leadership was mentioned, this wonderful person was looked to for inspiration, as well as, results. Too often it was said, "Someone Else" can work with that group or committee. Whenever there was a job to be done or a meeting to attend, one name was on everybody's list, let "Someone Else" do it! "Someone Else" was a wonderful person, sometimes appearing superhuman, but a person can only do so much. Were the truth known, everyone expected too much from "Someone Else". Now "Someone Else" is gone, and we wonder what we are going to do. "Someone Else" left a wonderful example to follow, but who is going to follow it? Who is going to do the things that "Someone Else" did?

The previous paragraph was copied from the CIN-DAY USER GROUP newsletter, who took it from the NEW HORIZONS USERS GROUP newsletter, who repeated it from the PORTLAND USER'S GROUP newsletter. Thanks to all of them!!

Now is the time to share in "Someone Else's" glory. A lot of people can make the load lighter for everyone. Just yesterday my wife asked me why I was doing the Newsletter. What could I tell her? That "Nobody Else" would do it? Or that "Everybody Else" was too busy to help? Doesn't "Anybody Else" want a Newsletter?

That reminds me that now is the time to think about Officers and Librarians for next year. Are there any other volunteers willing to share the load? I, for one, will continue to help in any way I can, because I know the only help I can get for my TI is in the USERS GROUPS. Are we going to sit back and let them die? That would be a terrible waste of resources. Call your President NOW and volunteer your services.

I'm sorry for sounding so harsh, but I felt it needed to be said. I welcome your comments.

Maybe we can start a USER HELP COLUMN. What are your TI Problems? If you ask us, maybe another member of our groups, or even another group, will help with a solution. Let's give it a try.

Is your name and address correct? If not, call Frank Jenkins at 283-8526 and have it corrected.

P.S. We miss the news from Golden Crescent.

Frank Jenkins
Temporary Editor

Guest Columnist

HOW TO PRINT DOUBLE COLUMN TEXT

Have you ever wished you could print text using compressed print, thereby getting more on a page, but found reading 132 or 136 columns across too hard? Newspapers use several columns - why not us? What follows is a method of creating double columned text, right and left justified. Equipment required is II-Writer and IBasic. The underscore and overstrike capabilities of the II-Writer can be used, as well as any special codes that your printer uses. (See below for special instructions for the latter.)

First of all, of course, create your text! If you want to see how easy lines there will be in the end, you can use the appropriate margins in the Editor, but this isn't necessary. Next add the following line, before the first line:

```
.LN 0;RN 56;FI;AD;IN +5;PL 200
```

Be sure to end the line with a carriage return (*Word Wrap Mode*). The right margin can be whatever you want, but you should be sure to leave enough room for the margins of your final printout (i.e. two lines, left margin, right margin, and space between should be less than or equal to the maximum column capacity of your printer in condensed mode). Note that the width of the printed line will be one greater than the RN since the LN is 0. PL is a "page length" and should be more than the maximum number of lines that will be put out. Indenting of course is optional.

Now save your file using SF and go to the Formatter. As the output device DO NOT use your printer, but give the name of a disk file. I usually add a "1" to the name of the original file. When the Formatter is finished, go back to the Editor and load the newly created file. At the top you will see three little LF's representing the first three blank lines the Formatter puts on each page. Unless you particularly want them, delete them with FCTN 3. If you don't, the tops of the first two columns won't line up. Now scan down the file until you find the end of your text. It will be followed by a whole string of LF's. Delete from here to the end (FCTN 9, D <ENTER>, number of first line to be deleted, comma, E, <ENTER>). Note how all the right margins are lined up. Now save this file, using the PF function, not SF. You may use the same filename if you wish, since the one you modified is no longer necessary, but to be safe you should probably use a third name.

Now you will need to go to IBasic and run the following program.

```
100 CALL CLEAR ::DIN AS(200),C(200)::CRS=CHR$(13)::LFS=CHR$(10)::FFS=CHR$(12)::TS=CHR$(9)::LTS=CRS&TS::RTS=LTS&TS
```

```
110 DISPLAY AT(9,1):"INPUT FILE?":"DSK": : "PRINTER NAME?"
: "PIO" :: ACCEPT AT(10,4)SIZE(12)BEEP:FS :: OPEN #1:"DSK"
&FS,INPUT :: ACCEPT AT(13,1)SIZE(-28)BEEP:PS
120 OPEN #2:P#&".CR"
130 DISPLAY AT(6,1)ERASE ALL:"IN THE NEXT 3 INPUTS, BE SUR
ETHAT TWO TIMES WIDTH LEFT MARGIN + SPACE BETWEEN DOES NO
T EXCEED YOUR PRINTER'S CAPACITY"
140 DISPLAY AT(12,1):"HOW MANY SPACES LEFT MARGIN?6": : "H
OW MANY BETWEEN COLUMNS? 6": : "WIDTH OF COLUMN? 57": : "L
INES PER COLUMN? 55"
150 ACCEPT AT(13,1)SIZE(-2)BEEP:LEFT :: ACCEPT AT(16,1)SI
ZE(-2)BEEP:BETH :: ACCEPT AT(18,18)SIZE(-2)BEEP:WIDTH ::
ACCEPT AT(20,19)SIZE(-2)BEEP:CL
160 LEFT=LEFT+1 :: RIGHT=LEFT+BETH+WIDTH
170 PRINT #2:CHR$(15);CHR$(27);"D";CHR$(LEFT);CHR$(RIGHT)
;CHR$(0)!SET CONDENSED PRINT AND TABS
180 IF EOF(1)THEN CLOSE #1::CLOSE #2:: STOP ELSE X,Y,X1=0
190 X=X+1 :: LINPUT #1:AS(X):: B=POS(AS(X),LFS,1):: IF B
THEN AS(X)=SEG$(AS(X),1,B-1):: Y=Y+1 :: C(X)=0 ELSE C(X)=1
200 PRINT X;Y
210 IF X1 THEN 230
220 IF Y=CL THEN X1=X
230 IF Y<2*CL AND EOF(1)=0 THEN 190
240 IF Y<2*CL THEN CLOSE #1 :: GOTO 260
250 GOSUB 300 :: GOTO 180
260 EX=0 :: FOR Z=1 TO X :: EX=EX+C(Z):: IF Z-EX=INT((Y+1
)/2)THEN X1=Z :: GOTO 80
270 NEXT Z
280 GOSUB 300
290 CLOSE #2 :: STOP
300 X=0 :: Y=11
310 X=X+1 :: PRINT #2:TS;AS(X):: IF C(X)THEN PRINT #2:CRS
:: GOTO 310
320 Y=Y+1 :: PRINT #2:TS;AS(Y):: IF C(Y)THEN PRINT #2:LTS
:: GOTO 320
330 PRINT #2:LFS :: IF X<X1 THEN 310 ELSE PRINT #2:FFS ::
RETURN
```

A brief explanation of the program. 100 sets up an array to hold print lines in memory while the program figures out what to do with them, and sets up variables so I don't have to write so much. 110-150 displays messages and accepts answers with defaults. You can change these to ones of your choosing and thereby mostly press enter each time you use the program. 170 sends the code for condensed print to the printer, and sets up the tabs. Check this out with your printer manual, in case the code is different. If you don't have tabs at all, then see the changes below - the computer can do it too! Now comes the meat of the program. 190 inputs each line and numbers it. B tells the computer whether there is a line feed coming and if so, eliminates it, and increases Y which is counting the print lines. If there is no line feed then C(X) keeps track of which ones. 200 isn't necessary at all - just keeps your interest on

the screen! 220 holds the place for the top of the 2nd column, and 210 makes sure this only happens once. 230 check if there is more to do, either at all, or for this page, and 240 makes sure the columns are both full (if not 240 performs a recount). The subroutine at 300 actually does all the printing!

If your printer has no tab settings whatsoever, then make the following substitutions:

```
310 I=I+1::PRINT @2:TAB(LEFT);A$(I);CR$ ::IF C(I) THEN
310
```

```
320 Y=Y+1::PRINT @2:TAB(LEFT+RIGHT);A$(Y) ;CR$ :: IF C(Y)
THEN 290
```

and eliminate everything in 170 that follows CHR\$(15).

If you are using control codes to the printer

embedded in text, use the following method to make the margins line up. Transliterate a single unused character to the code you want and add a JZ, because the formatter will think this is a character to be printed and count it, but the printer won't save! (e.g. I used the open and close brace to italicize in this text - the proper command, on a separate line at the beginning of the file, would be .TL 123:27,4,JZ <carriage return>) Now the only thing you have to check in the formatted file is whether this occurs at the beginning of a line. If so, eliminate the space at the beginning and add one somewhere else on the line (in FIXED MODE of course).

I hope you enjoy using this program. It was fun to write, but terrible to get the bugs out!!!

Tom Freeman

FOR SALE!

HARDWARE

- TI-99/4A Computer
- P.E. Box
- RS-232 Interface Card
- Speech Synthesizer
- Joysticks
- Cassette Cable

SOFTWARE

- Extended Basic
- Personal Record Keeping
- Super Sketch (Video Graphics)
- Typewriter (Word Processor)
- Weight Control & Nutrition

Early Learning Fun, Early Reading Fun, Addition and Subtraction I, Alien Addition, Minus Mission, Dragon Mix

Hustle, Tombstone City, Zero Zap, Connect Four, Yahtzee, Alpiner, Amazing, TI Invaders, Car Wars, The Attack, Sneggit, Parsec

TI-99/4A 51 Fun & Educational Programs (cass & ran)

PRICE: \$200.00

Contact: Joanne or Jack at 234-3270



QUICK REFERENCE SHEET

COLOR CODES		PATTERN IDENTIFIER CONVERSION TABLE				ERROR CODES	
COLOR	VALUE	0	1	2	3	FIRST	COMMAND OR STATEMENT
TRANSPARENT	1	0	0	0	0	1	OPEN
BLACK	2	0	0	0	1	2	CLOSE
MED. GREEN	3	0	0	1	0	3	INPUT
LT. GREEN	4	0	0	1	1	4	PRINT
DARK BLUE	5	0	1	0	0	5	RESTORE
LT. BLUE	6	0	1	0	1	6	OLS
DK. RED	7	0	1	1	0	7	SAVE
CYAN	8	0	1	1	1	8	DELETE
MED. RED	9	1	0	0	0	9	EOF
LT. RED	10	1	0	0	1		
DK. YELLOW	11	1	0	1	0		
LT. YELLOW	12	1	0	1	1		
DK. GREEN	13	1	1	0	0		
MAGENTA	14	1	1	0	1		
GRAY	15	1	1	1	0		
WHITE	16	1	1	1	1		

ASCII CODES									
CODE	CODE	CODE	CODE	CODE	CODE	CODE	CODE	CODE	CODE
48	49	50	51	52	53	54	55	56	57
58	59	60	61	62	63	64	65	66	67
68	69	70	71	72	73	74	75	76	77
78	79	80	81	82	83	84	85	86	87
88	89	90	91	92	93	94	95	96	97
98	99	100	101	102	103	104	105	106	107
108	109	110	111	112	113	114	115	116	117
118	119	120	121	122	123	124	125	126	127
128	129	130	131	132	133	134	135	136	137
138	139	140	141	142	143	144	145	146	147
148	149	150	151	152	153	154	155	156	157
158	159	160	161	162	163	164	165	166	167
168	169	170	171	172	173	174	175	176	177
178	179	180	181	182	183	184	185	186	187
188	189	190	191	192	193	194	195	196	197
198	199	200	201	202	203	204	205	206	207
208	209	210	211	212	213	214	215	216	217
218	219	220	221	222	223	224	225	226	227
228	229	230	231	232	233	234	235	236	237
238	239	240	241	242	243	244	245	246	247
248	249	250	251	252	253	254	255	256	257
258	259	260	261	262	263	264	265	266	267
268	269	270	271	272	273	274	275	276	277
278	279	280	281	282	283	284	285	286	287
288	289	290	291	292	293	294	295	296	297
298	299	300	301	302	303	304	305	306	307
308	309	310	311	312	313	314	315	316	317
318	319	320	321	322	323	324	325	326	327
328	329	330	331	332	333	334	335	336	337
338	339	340	341	342	343	344	345	346	347
348	349	350	351	352	353	354	355	356	357
358	359	360	361	362	363	364	365	366	367
368	369	370	371	372	373	374	375	376	377
378	379	380	381	382	383	384	385	386	387
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438	439	440	441	442	443	444	445	446	447
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458	459	460	461	462	463	464	465	466	467
468	469	470	471	472	473	474	475	476	477
478	479	480	481	482	483	484	485	486	487
488	489	490	491	492	493	494	495	496	497
498	499	500	501	502	503	504	505	506	507
508	509	510	511	512	513	514	515	516	517
518	519	520	521	522	523	524	525	526	527
528	529	530	531	532	533	534	535	536	537
538	539	540	541	542	543	544	545	546	547
548	549	550	551	552	553	554	555	556	557
558	559	560	561	562	563	564	565	566	567
568	569	570	571	572	573	574	575	576	577
578	579	580	581	582	583	584	585	586	587
588	589	590	591	592	593	594	595	596	597
598	599	600	601	602	603	604	605	606	607
608	609	610	611	612	613	614	615	616	617
618	619	620	621	622	623	624	625	626	627
628	629	630	631	632	633	634	635	636	637
638	639	640	641	642	643	644	645	646	647
648	649	650	651	652	653	654	655	656	657
658	659	660	661	662	663	664	665	666	667
668	669	670	671	672	673	674	675	676	677
678	679	680	681	682	683	684	685	686	687
688	689	690	691	692	693	694	695	696	697
698	699	700	701	702	703	704	705	706	707
708	709	710	711	712	713	714	715	716	717
718	719	720	721	722	723	724	725	726	727
728	729	730	731	732	733	734	735	736	737
738	739	740	741	742	743	744	745	746	747
748	749	750	751	752	753	754	755	756	757
758	759	760	761	762	763	764	765	766	767
768	769	770	771	772	773	774	775	776	777
778	779	780	781	782	783	784	785	786	787
788	789	790	791	792	793	794	795	796	797
798	799	800	801	802	803	804	805	806	807
808	809	810	811	812	813	814	815	816	817
818	819	820	821	822	823	824	825	826	827
828	829	830	831	832	833	834	835	836	837
838	839	840	841	842	843	844	845	846	847
848	849	850	851	852	853	854	855	856	857
858	859	860	861	862	863	864	865	866	867
868	869	870	871	872	873	874	875	876	877
878	879	880	881	882	883	884	885	886	887
888	889	890	891	892	893	894	895	896	897
898	899	900	901	902	903	904	905	906	907
908	909	910	911	912	913	914	915	916	917
918	919	920	921	922	923	924	925	926	927
928	929	930	931	932	933	934	935	936	937
938	939	940	941	942	943	944	945	946	947
948	949	950	951	952	953	954	955	956	957
958	959	960	961	962	963	964	965	966	967
968	969	970	971	972	973	974	975	976	977
978	979	980	981	982	983	984	985	986	987
988	989	990	991	992	993	994	995	996	997
998	999	1000	1001	1002	1003	1004	1005	1006	1007

CHARACTER SETS		CALL KEY VALUE OF KEYSTROKES		JOYSTICK RETURN VALUES	
SET	ASCII CODES	CODE	KEYSTROKE		
0	30-31	1	FCTN 7	0	UP (0,4)
1	32-39	2	FCTN 4	1	(-4,4)
2	40-47	3	FCTN 1	2	(4,4)
3	48-55	4	FCTN 2	3	(-4,0)
4	56-63	5	FCTN 8	4	(4,0)
5	64-71	6	FCTN 3	5	LEFT
6	72-79	7	FCTN 5	6	RIGHT
7	80-87	8	FCTN 6	7	(-4,-4)
8	88-95	9	FCTN 9	8	(4,-4)
9	96-103	10	FCTN D	9	(0,-4)
10	104-111	11	FCTN X		DOWN
11	112-119	12	FCTN E		
12	120-127	13	FCTN 4		
13	128-135	14	ENTER		
14	136-143	15	FCTN 5		
15	144-151/BASIC		FCTN 9		
16	152-159/ONLY				

CONTROL CODES		EXTENDED BASIC STATEMENTS					
ASC	PRESS	COMMENTS	ACCEPT	DISTANCE	KEY	ON WARNING	SCREEN
1	CTRL A	START OF HEADING	CHAR	END	LET	OPEN	SOUND
2	CTRL B	START OF TEXT	CHARPAT	ERR	LINK	OPTION BASE	SPSET
3	CTRL C	END OF TEXT	CHARSET	FOR	LINPUT	PATTERN	SPRITE
4	CTRL D	END OF TRANS.	CLEAR	GCNAR	LOAD	PEEK	STOP
5	CTRL E	INQUIRY	CLOSE	GOSUB	LOCATE	POSITION	SUB
6	CTRL F	ACKNOWLEDGE	COINC	GOTO	MAGNIFY	PRINT	
7	CTRL G	BELL	COLOR	MCHAR	NOTION	RANDOMIZE	
8	CTRL H	BACKSPACE	DATA	IF THEN	NEXT	READ	
9	CTRL I	HORIZ. TAB	DEF	IMAGE	ON BREAK	REM	
10	SHIFT/ENTR	LINE FEED	DEFSprite	INIT	ON ERROR	RESTORE	
11	CTRL K	VERTICAL TAB	DIM	INPUT	ON GOSUB	RETURN	
12	CTRL L	FORM FEED	DISPLAY	JOYST	ON GOTO	SAY	
13	ENTER	CARRIAGE RETURN					
14	CTRL M	SHIFT OUT					
15	CTRL O	SHIFT IN					
16	CTRL P	DATA LINK ESCAPE					
17	CTRL R	DEVICE CONTROL 1					
18	CTRL S	DEVICE CONTROL 2					
19	CTRL T	DEVICE CONTROL 3					
20	CTRL U	DEVICE CONTROL 4					
21	CTRL Y	MES. ACKNOWLEDGE					
22	CTRL V	SYNCHRONOUS IDLE					
23	CTRL X	END OF TRANSMIS.					
24	CTRL Z	CANCEL					
25	CTRL Y	END OF MEDIUM					
26	CTRL Z	SUBSTITUTE					
27	CTRL .	ESCAPE					
28	CTRL N	FILE SEPARATOR					
29	CTRL J	GROUP SEPARATOR					
30	CTRL B	RECORD SEPARATOR					
31	CTRL Q	UNIT SEPARATOR					
32	SHIFT V	DELETE CHARACTER					

ADDRESS	PARAMETERS	DESCRIPTION
-32740	POKE 0-255	RATE of FLASH of CURSOR
-31788	POKE 192	DISABLE SPRITE action
-31884	PEEK X,Y	Returns to Title Screen
-31884	POKE X,Y	

Using "PRINT USING"
with your printer
By Richard Roberts
TI3532

One of the more obscure statements available with TI Extended BASIC is one called PRINT USING. Even more obscure is the fact that this statement can be used to format variables and constants that will be dumped to your printer. The Extended BASIC manual, on page 150, shows several examples of how PRINT USING can be used to format data for screen display, but nary a word of how to do the same with open files. It can be done, and is much more powerful than you may realize.

Any discussion of PRINT USING will require an understanding of the IMAGE statement, so if you are not familiar with it, you better brush up on it first. The PRINT USING statement uses IMAGE in one of two ways, either with a string expression, or a line number reference. I prefer the latter, as it allows for more flexibility, but since these different methods are explained in the manual, I will limit this to a few simple examples that are not shown in the manual.

```
100 TCOST=19.55
110 IMAGE ##.##
120 OPEN #1:"PIO"
130 PRINT #1,USING 110:TCOST
```

Running this sample program will effectively show how the PRINT USING statement will work with an open file. Of course, there are many other variations of IMAGE that can be used, so experiment with them and watch how it performs when line 130 dumps it to the printer. Shown below are a few more examples for use with an open file.

```
110 IMAGE "##.## ##.##"
130 PRINT #1,USING 110:COST1,COST2
```

This IMAGE statement will allow you to print two (or more) variables at a pre-determined spot on the same line. The length of the string expression in the IMAGE statement can be as long as you wish, up to the limit of an Extended BASIC line.

```
110 IMAGE "##### ##.##"
130 PRINT #1,USING 110:"TOTAL COST",
TCOST
```

This version shows how you can format the printed line for string data as well as numerical data. A string variable could be used in place of the string constant, as below.

```
105 A$="TOTAL COST"
110 IMAGE "##### ##.##"
130 PRINT #1,USING 110:A$,TCOST
```

It is also possible to place the IMAGE statement inside the PRINT USING statement, as shown below. First, delete line 110.

```
130 PRINT #1,USING "##### ##.##":TCOST
or
130 PRINT #1,USING "##### ##.##"
:A$,TCOST
```

A few other points to remember include the fact that IMAGE and PRINT USING can be used to round off calculated variables. A single string expression such as "#####.##" will round off and decimal align numbers as small as number at any designated location. This function could save many hours of algorithm development for accomplishing the same thing. So, in the long run, the PRINT USING statement is one that any programmer should be very familiar with, and use as much as possible.

RICHARD ROBERTS IS PRESIDENT OF THE DALLAS TI99/4A USERS GROUP. SOFTMAIL WELCOMES TUTORIALS OR OTHER ITEMS OF INTEREST THAT USERS MAY WISH TO SHARE WITH OTHERS. THROUGH EFFORTS SUCH AS RICHARDS WE MAY WELL ALL BE ABLE TO ENJOY AND BENEFIT FROM OUR ORPHAN AS LONG AS THOSE POOR SOULS LEFT HANGING WITH BANANA 9000 JUNIOR! MAYBE EVEN LONGER!

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